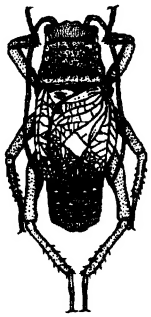
Far Eastern Entomologist



Дальневосточный энтомолог

Journal published by
Far East Branch of the
Russian Entomological Society
and Laboratory of Entomology
Institute of Biology and Pedology,
Vladivostok

Number 5: 1-8 December 1994

A PRELIMINARY DATA ON CHIRONOMID FAUNA (DIPTERA, CHIRONOMIDAE) OF THE SAKHALIN AND KUNASHIR ISLANDS

E.A.Makarchenko and M.A.Makarchenko

Institute of Biology and Pedology, Vladivostok-22, 690022, Russia

The nighty eight species of Chironomidae (Diptera) from Sakhalin and 65 species from Kunashir (Kurile Islands) are listed. *Kaluginia lebetiformis* Makar. is endemic of Sakhalin and *Syndiamesa mira* (Makar.) is endemic of Kunashir. *Diamesa japonica* Tok., *Euryhapsis subviridis* (Sieb.), *E. cilium* Ol., *Pagastia lanceolata* (Tok.), *Sympotthastia gemmaformis* Makar. and *Paraboreochlus* Edw. are new to Russia.

KEY WORDS: Diptera, Chironomidae, faunistics.

Е.А.Макарченко, М.А.Макарченко. Предварительные данные по фауне Chironomidae (Diptera) островов Сахалин и Кунашир // Дальневосточный энтомолог. 1994. № 5. С. 1-8.

Приведен список 98 видов хирономид для острова Сахалин и 65 видов для острова Кунашир. Отмечается возможный эндемизм *Kaluginia lebetiformis* Makar. для Сахалина и *Syndiamesa mira* (Makar.) для Кунашира. Впервые для России указываются род *Paraboreochlus* Edw. и 5 видов: *Diamesa japonica* Tok., *Euryhapsis subviridis* (Sieb), *E. cilium* Ol., *Pagastia lanceolata* (Tok.) и *Sympotthastia gemmaformis* Makar.

Биолого-почвенный институт, Дальневосточное отделение Российской Академии наук, Владивосток, 690022, Россия.

INTRODUCTION

Up to the middle 1970, information about Chironomidae from the Sakhalin and Kunashir Islands was mainly indirectly derived from studies of fish food and zoobenthos (Kluchareva et al., 1969; Zhuikova, 1973, 1974, 1975; Zhulkov, Shershnev, 1975). In order to achieve more precise knowledge about the occurrence and distribution of chironomids in the region we initiated a survey which included other life history stages of the species. This particular focus on chironomids has produced a series of taxonomical papers (Makarchenko 1976, 1980, 1985, 1987, 1994; Makarchenko et al., 1988).

The material used for the compilation of this report was collected in rivers and lakes of Kunashir Island in 1976, 1978 and 1989, and from Sakhalin - during 1979-1989 by the authors and by other staff (Drs. I.M. Levanidova, T.S. Vshivkova, I.A. Chereshnev, T.M. Tiunova) of the Laboratory Freshwater Hydrobiology (Institute of Biology and Pedology FEB RAS). We also received some material from Drs. L.A. Zhiltzova (Zoological Institute RAS, St-Petersburg) and A.I. Zhulkov (Tikhookeanskyi Institute Rybnogo Hozyaistva i Okeanografii, Yuzhno-Sakhalinsk).

For the purpose of summarizing distribution data, the Sakhalin Island is conventionally divided into three parts, the Northern (I), Middle (II) and Southern Region (III). The following rivers and streams are included in these regions:

I - River Tym' with its tributaries Pilenga, Blagodatnyi and Rybovodnyi; River Dagi and the streams around Neftegorsk.

II - Rivers Pritornaya, Nerpichya, Ai, Malaya Ainka, Sigma Stream.

III - Lyutoga River with tributary Bystraya (Brjanka); the rivers Belaya, Zalom, Takoi, Shuya, Komissarovka, Otchepuha, Rogatka and Taranai.

The data from Kunashir Island are based on records from the following rivers and lakes:

IV - streams around Alekhino and Sernovodsk Villages, streams around Lake Kipyashchee (Golovnin's volcano); Rivers Tyurino, Andreevka, Peschanaya, Lesnaya, Ozernaya; Lake Peschanoe.

Additional abbreviation is used throughout the list of species: gr. - group of species.

LIST OF THE CHIRONOMIDAE OF THE SAKHALIN AND KUNASHIR ISLANDS

Taxa	Regions & Rivers			
	I	II	III	IV
1	2	3	4	5
Subfamily Podonominae				
1. *Boreochlus thienemanni* (Edw.)	-	-	+	-

1	2	3	4	5
2. *Paraboreochlus sp.*	-	-	+	-
Subfamily Tanypodinae				
3. *Ablabesmyia* gr. *monilis* L.	-	-	-	+
4. *Apsectrotanypus sp.*	-	-	-	+
5. *Clinotanypus* gr. *nervosus* Mg.	-	-	-	+
6. *Macropelopia paranebulosa* Fittkau	+	-	+	+
7. *Meropelopia sp.*	-	+	-	+
8. *Procladius* gr. *choreus* Mg.	+	-	+	-
9. P. *ferrugineus* K.	-	-	+	-
10. *P. nigriventris* K.	-	-	-	+
11. *Procladius sp.*	-	-	-	+
12. *Psectrotanypus sibiricus* (Tshern.)	-	-	+	-
13. *Rheopelopia sp.*	+	-	+	+
14. *Nilotanypus sp.*	-	-	+	-
15. *Thienemannimyia sp.*	-	-	-	+
16. *Telmatopelopia sp.*	+	-	-	-
17. ? *Zavrelimyia sp.*	-	-	-	+
Subfamily Diamesinae				
18. *Boreoheptagyia brevitarsis* (Tok.)	-	-	+	-
19. *Diamesa alpina* Tok.	-	-	-	+
20. *D. daktyloidea* Makar.	-	-	+	-
21. *D. japonica* Tok.	-	-	-	+
22. *D. leona* Rob.	-	-	+	-
23. *D. tsutsuii* Tok.	+	+	+	+
24. *D. vernalis* Makar.	-	-	+	-
25. *D. zernyi* Edw.	+	-	+	-
26. *Kaluginia lebetiformis* Makar.	-	-	+	-
27. *Pagastia angarensis* (Linev.)	-	-	+	+
28. *P. lanceolata* (Tok.)	-	+	+	+
29. *P. orientalis* (Tshern.)	+	-	-	-
30. *Potthastia sp.*	+	-	+	-
31. *Protanypus caudatus* Edw.	-	-	+	-
32. *Pseudodiamesa* ? *branickii* (Now.)	-	-	+	+
33. *P. stackelbergi* G.	+	+	+	-
34. *Sympotthastia gemmaformis* Makar.	-	+	-	-
35. *S. takatensis* (Tok.)	+	-	+	-
36. *Syndiamesa mira* (Makar.)	-	-	-	+
Subfamily Prodiamesinae				
37. *Monodiamesa* gr. *bathyphila* K.	-	+	+	+
38. *Prodiamesa levanidovae* Makar.	+	-	+	-

1	2	3	4	5
39. *P. olivacea* Mg.	+	-	+	-
Subfamily Orthocladiinae				
40. *Brillia flavifrons* (Joh.)	+	+	+	-
41. *B. modesta* (Mg.)	-	-	+	+
42. *Chaetocladius* gr. *vitellinus* K.	-	-	+	-
43. *Corynoneura* gr. *scutellata* Winn.	-	+	+	+
44. *Cricotopus* gr. *silvestris* K.	-	-	-	+
45. *Diplocladius cultriger* K.	+	-	+	-
46. *Epoicocladius ephemerae* K.	-	-	-	+
47. *Eukiefferiella* gr. *brehmi* Gowin	-	+	+	+
48. *E. calvescens* Edw.	-	-	+	-
49. *E.* gr. *claripennis* Oliver	+	-	+	+
50. *E.* gr. *cyanea* Thien.	-	-	+	-
51. *E.* gr. *devonica* Saeth. et Halv.	-	-	+	-
52. *E.* gr. *gracei* G.	-	-	+	+
53. *E.* gr. *rectangularis* G.	-	-	-	+
54. *Eukiefferiella sp.*	-	-	-	+
55. *Euryhapsis cilium* Oliver	-	-	+	-
56. *E. subviridis* (Siebert)	-	-	+	-
57. *Heterotrissocladius* gr. *marcidus* (Walk.)	+	+	+	+
58. *H.* gr. *subpilosus* (K.)	-	-	+	-
59. *Hydrobaenus sp.*	-	-	+	-
60. *Krenosmittia camptophleps* (Edw.)	-	-	+	+
61. *Limnophyes* gr. *prolongatus* K.	-	-	+	-
62. *Metriocnemus fuscipes* (Mg.)	-	-	+	-
63. *Nanocladius (Plecopteracoluthus) sp.*	-	-	+	-
64. *Oliveridia tricornis* (Oliver)	-	+	+	-
65. *Orthocladius (Eudactylocladius) sp.*	+	-	+	+
66. *O. (Euorthocladius) frigidus* (Zett.)	-	-	+	-
67. *O. (E.) reofilus* Linev.	-	-	+	-
68. *O. (E.) tridentifer* (Linev.)	-	+	+	+
69. *O. (E.) sp.* 1	+	+	+	+
70. *O. (E.) sp.* 2	-	+	+	+
71. *O.* gr. *saxicola* K.	-	-	+	+
72. *O. (Orthocladius) sp.* 1	-	-	+	+
73. *O. (O.) sp.* 2	-	+	+	+
74. *O. (O.) sp.* 3	+	-	+	+
75. *O. (O.) sp.* 4	+	-	+	+
76. *O. (O.) sp.* 5	-	-	+	-
77. *Paracricotopus sp.*	-	-	-	+

1	2	3	4	5
78. *Parametriocnemus stylatus* K.	-	-	-	+
79. *Parorthocladius oxyrhynchus* K.	-	+	-	-
80. *Psectrocladius* gr. *dilatatus* (Wulp)	-	-	+	-
81. *P.* gr. *psilopterus* K.	+	-	+	+
82. *Pseudorthocladius* gr. *curtistylus* G.	-	-	+	-
83. *Rheocricotopus eminollobus* (Saether)	-	-	-	+
84. *R. dorieri* (G.)	-	-	+	-
85. *Stilocladius sp.*	-	-	+	+
86. *Symposiocladius lignicola* (K.)	+	-	-	-
87. *Synorthocladius sp.* (aff. *semivirens*)	-	-	+	-
88. *Thinemanniella* gr. *clavicornis* K.	+	-	+	+
89. *Tvetenia* gr. *bavarica* G.	-	-	+	+
90. *T.* gr. *discoloripes* (G.)	+	-	+	-
91. *T. duodinaria* K.	-	-	+	-
Subfamily Chironominae				
92. *Chironomus sp.*	-	-	-	+
93. *Ch. yoshimatsui* Mart. et Subl.	-	-	+	-
94. *Cladotanytarsus sp.*	-	-	+	-
95. *Constempellina sp.*	-	-	+	-
96. *Cryptochironomus sp.* (Chironominae genuinae N 9 Lipina)	-	-	+	-
97. *C.* gr. *defectus* K.	-	-	+	+
98. *C.* gr. *pararostratus* K.	-	-	-	+
99. *C.* gr. *viridulus* Fabr.	-	-	-	+
100. *Demycryptochironomus vulneratus* (Zett.)	+	-	+	-
101. *Einfeldia* gr. *carbonaria* Mg.	-	-	-	+
102. *Glyptotendipes* gr. *gripekoveni* K.	-	-	-	+
103. *Limnochironomus* gr. *nervosus* St.	-	-	-	+
104. *L.* gr. *tritomus* (K.)	-	-	+	+
105. *Micropsectra sp.*	+	+	-	+
106. *Microtendipes pedellus* (De Geer)	-	-	+	-
107. *Paracladopelma camptolabis* (K.)	-	+	+	-
108. *Paratanytarsus sp.*	+	-	+	-
109. *Paratendipes albimanus* (Mg.)	-	-	-	+
110. *Polypedilum bicrenatum* K.	-	-	+	+
111. *P. convictum* (Walk.)	+	-	+	+
112. *P.* gr. *nubeculosum* Mg.	-	-	-	+
113. *P.* gr. *pedestre* (Mg.)	-	-	+	-

1	2	3	4	5
114. *Polypedilum sp.* (Chironominae genuinae N 3 Lipina)	-	-	+	+
115. *P. scalaenum* (Schr.)	-	-	+	+
116. *Rheotanytarsus sp.*	+	-	-	+
117. *Sergentia* gr. *coracina* (Zett.)	-	-	+	-
118. *S. flavodentata* Tshern.	+	-	-	-
119. *S.* gr. *longiventris* K.	-	-	+	-
120. *Stempellinella sp.*	-	+	-	-
121. *Stictochironomus* gr. *histrio* (Fabr.)	+	+	+	+
122. *Tanytarsus* gr. *bathophilus* K.	-	-	-	+
123. *Tanytarsus sp.*	-	-	+	-
124. *T.* gr. *gregarius* K.	-	-	-	+
125. Tendipedini ? g.*macrophtalma* Tshern.	-	-	-	+
Number of species	32	20	87	65

DISCUSSION

The preliminary list of chironomids of Sakhalin Island includes 98 species of adult and larval forms, 58 genera from 6 subfamilies. On Kunashir Island 65 species and 41 genera from 6 subfamilies have been collected.

Several species appear to have restricted distributions. *Kaluginia lebetiformis* Makar. was described on a male from the middle reaches of Belaya River (Makarchenko, 1987). It is a monotypic genus and appears to be an endemic of South Sakhalin. Likewise, *Syndiamesa mira* (Makar.) is known only from the type locality, the Tyurino River at the village of Sernovodsk (Makarchenko, 1980, 1985). *Sympotthastia gemmaformis* Makar. is known only from Sakhalin and Hokkaido (Makarchenko, 1994). Other species, includings *Diamesa japonica* Tok., *Euryhapsis subviridis* (Siebert), *E. cilium* Oliver, *Pagastia lanceolata* (Tok.), and *Paraboreochlus sp.* were unknown in Russia before our survey started. *Euryhapsis subviridis* was originally described from Austria, based on a single male only. In Sakhalin we collected all stages of this species and described the immatures and the karyotype (Makarchenko et al., 1988). The genus *Paraboreochlus* which was previously known from West Europe and North America, was found in Belaya River (South Sakhalin).

In a previous paper, we stated that the continental species *Pagastia orientalis* occurs in South Sakhalin and Kunashir (Makarchenko, 1985). However, we now realize that this was a misidentification of *P. lanceolata.* Material from Japan and a detailed examination of karyotypes and genital structures of males from island

and continental populations show that *P. lanceolata* occurs in South Sakhalin, Kunashir, Iturup, Hokkaido and the Honshu Islands whereas *P. orientalis* is distributed from northern Sakhalin over the continental part of the Far East.

Unfortunately, many records of chironomid taxa from this region are still based on larvae which have not yet been associated with imagines of known taxa. The conclusions that can be drawn from distributional patterns are therefore limited and more efforts are needed in order to identify all life history stages of the species.

ACKNOWLEDGMENTS

Authors are grateful to Drs. I.M.Levanidova, T.S.Vshivkova, T.M.Tiunova and I.A.Chereshnev for help during the collection of the material and we are much indebted to Drs.L.A.Zhiltzova, A.I.Zhulkov and L.I.Zhuikova for making the material available to us. Also we are grateful to Dr. E.Willassen from Bergen University (Norway) for editing of our "Russian" English.

REFERENCES

Kluchareva, O.A., Linevich, A.A., Sokolskaya, N.L. & Starobogatov, Ya.I. 1969. [Benthos of lagoon lakes of the Kunashir Island (Kurile Islands)]. - In: Biological production of Siberien reservoirs. Moscow: 122-127 (In Russian).

Makarchenko, E.A. 1976. [Chironomid larvae (Diptera, Chironomidae) of reservoirs of the Chukotka Peninsula]. - In: Presnovodnaya fauna Chukotskogo poluostrova. Vladivostok: 57-63 (In Russian).

Makarchenko, E.A. 1980. [Two new species of Parapotthastia (Diptera, Chironomidae) from the south of the Soviet Far East].- Zoologicheskii Zhurnal 59: 466-470 (In Russian).

Makarchenko, E.A. 1985. [Chironomids of the Soviet Far East. Subfamilies Podonominae, Diamesinae and Prodiamesinae (Diptera, Chironomidae)]. Vladivostok: 208 pp. (In Russian).

Makarchenko, E.A. 1987. [Kaluginia lebetiformis gen.et sp.n. (Diptera, Chironomidae) from South of Sakhalin]. - Zoologicheskii Zhurnal 66: 784-786 (In Russian).

Makarchenko, E.A. 1994. Chironomids of the subfamily Diamesinae (Diptera, Chironomidae) from Japan. II. Sympotthastia Pagast, 1947. - Bull. Natn. Sci. Mus. Tokyo, Ser. A, 20(1): 51-58.

Makarchenko, E.A., Kiknadze, I.I. & Kerkis I.E. 1988. Morphokaryological description of Euryhapsis subviridis (Siebert) from the south of the Soviet Far East (Diptera, Chironomidae). - Spixiana, Suppl.14: 129-137.

Zhuikova, L.I. 1973. [Fauna of the bottom invertebrates of the Belaja River (Sakhalin)]. - In: Investigations on fish biology and industry oceanography. Vladivostok, 4: 78-83 (In Russian).
Zhuikova, L.I. 1974. [About benthos drift of the Belaja River (South-East of Sakhalin)]. - Izvestiya Tikhookeanskogo Instituta Rybnogo Khozyaistva i Okeanografii 93: 124-128 (In Russian).
Zhuikova, L.I. 1975. [Food and food relationships of young keta fish]. - Ibid., 95:36- 46 (In Russian).
Zhulkov, A.I. & Shershnev A.G. 1975. [Materials on twenty-fourhours drift of the aquatic invertebrates in Pritornaja River]. - Ibid., 95: 58- 63 (In Russian).

© Far Eastern Entomologist

Editor-in-Chief: S.Yu.Storozhenko
Editorial Board: A.S.Lelej Yu.A.Tshistjakov
N.V.Kurzenko V.N.Makarkin

Address: Institute of Biology and Pedology, Far East Branch of Russian Academy of Sciences, 690022, Vladivostok-22, Russia.
FAX: (4232) 310 193
E-mail: entomol@stv.iasnet.com